



The Army's Chesapeake Review

December 2000



USAEC Promotes BayScapes

by Adriane Miller

By demonstrating its commitment to environmental conservation and stewardship, the U.S. Army Environmental Center (USAEC) has reaped at least three benefits: Aberdeen Proving Ground is greener, local water quality is improved, and the local community is more informed.

USAEC planted gardens of native plants in September and October near its offices at the Edgewood Area of Aberdeen Proving Ground, Md. The BayScapes demonstration landscape will show the local community how simple gardening techniques help to minimize storm water runoff and improve water resources.

Volunteers from the surrounding military and civilian communities, including elected officials, soldiers, Boy Scouts and elementary school students, planted about 800 trees, shrubs and grasses on National Public Lands Day, Sept. 23, 2000. Volunteers met again in October to erect a large gazebo in the center of the demonstration garden and add hundreds of additional plants.

USAEC celebrated the completion of its BayScapes garden Nov. 8 with a ribbon cutting ceremony at the BayScapes garden gazebo. For USAEC's Janmichael Graine, Army Chesapeake Bay Program coordinator, the celebratory

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Don Morrison

Allyn Watson, principal of Edgewood Elementary School, and Dr. Bernard Barnes, assistant superintendent, Harford County Public Schools, help elementary school students place stepping stones in the BayScapes demonstration garden at APG.

FAC Highlights

Is Low Impact Development a Match for Federal Agencies?

by Don Maglienti

The Federal Agencies Committee learned techniques of Low Impact Development (LID) during their Oct. 26 meeting at the Chesapeake Bay Program Office in Annapolis, Md. Larry Coffman of the Prince George's County, Md., Department of Environmental Resources spoke to the FAC about LID and how it applies to federal lands. LID is a technological approach to water resources management and ecosystem protection that uses innovative practices to control storm water runoff on a site-by-site basis. Conventional storm water controls have been limited in their success due to high maintenance costs, safety concerns, inefficient

pollutant removal, and their failure to meet the ever-changing objectives of resource protection. With LID, much simpler, cost effective techniques are used to prevent storm water runoff from negatively impacting an individual site. LID accounts for the hydrology, nutrient storage and cycling, plant productivity, and water quality of a site. The techniques for LID are almost limitless. Some common practices include bioretention through structures like rain gardens—areas of natural vegetation that utilize water for plant growth while serving to filter out pollutants and reduce total flow to overburdened

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Military Participates in Stream Assessments

by Don Maglienti

The Watershed Restoration Division of the Maryland Department of Natural Resources (DNR) is conducting a Stream Corridor Assessment Survey for Maryland. The survey will serve as a watershed management tool to help identify environmental problems and restoration opportunities. Military installations located in Maryland with streams are participating to ensure that their lands are included in the survey results. To date, 11 military installa-

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Don Maglienti

Bob Wardwell of the U.S. Army Adelphi Laboratory points to one of his facility's stream segments as Ken Yetman of the Maryland DNR and Patti Rice of the MCC record data.

Stream Assessments

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tions, including four Army installations (Fort Meade, Fort Detrick, Walter Reed Hospital Annex, and Adelphi Labs), have been surveyed. The Maryland Conservation Corps (MCC) supports the Maryland DNR to perform much of the survey field work.

The Stream Corridor Assessment Survey will provide a list of environmental problems present within a watershed's stream system and riparian corridor. Survey findings will be used to assess the severity and restoration potential of problems, and subsequently to prioritize restoration efforts. The survey provides an initial assess-

ment of stream habitat conditions so that various stream segments can later be compared by their ability to support fish and wildlife.

In contrast to time consuming, expensive, and limited-scope surveys often associated with water resources, the Maryland Stream Corridor Assessment Survey provides a rapid method of examining an entire drainage network so that future monitoring and management efforts can be targeted more accurately. Environmental problems identified during a typical survey include channelized stream sections, bank erosion, exposed or degraded pipes, inadequate stream buffers, fish blockages, trash, construc-

tion activity, and pollutant discharges. In addition to finding problems, the survey also identifies possible solutions, such as the general location of sites with potential for wetland creation or water quality retrofits.

The survey has covered more than 1,000 miles of streams in Maryland within the past few years, and is responsible for the initiation of more than \$2 million of restoration work. As part of this effort, military installations in Maryland should find the survey a useful tool for their individual watershed planning efforts. For more information on the Maryland Stream Corridor Assessment survey contact Ken Yetman at 410-260-8812.



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Low Impact Development

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streams. Runoff from rooftops can be detained within rooftop gardens, rain barrels, or be directed back into the groundwater rather than into a storm sewer. Sites under development can maximize use of more pervious surfaces that allow runoff to filter back into the ground, and the topography can be graded to contain and treat runoff onsite instead of channeling water offsite as quickly as possible.

The 1998 Federal Agencies Chesapeake Ecosystem Unified Plan (FACEUP) directs federal agencies to encourage construction design that adopts principles of LID for the control of storm water and erosion. The Chesapeake 2000 Agreement calls for the development by 2001 of an Executive Council Directive to address storm water management to control nutrient, sediment, and chemical contaminant runoff. Since federal agencies are signatories to all Bay Program directives, they will be expected to set an example for states and local governments to implement innovative storm water management techniques. By practicing LID, federal agencies could set such an example, while successfully meeting the goals of a future directive on storm water. In the fall of 2001, the U.S. Army Environmental Center will offer LID training to all federal agencies as part of its continuing effort to facilitate the federal role as a leader in storm water runoff management. Additional information on LID techniques can be found at <www.lowimpactdevelopment.org>.

BayScapes

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air and the new beauty of the surroundings provided a fitting end to a process he initiated more than three years earlier. USAEC Commander Colonel Stanley H. Lillie opened the ceremony by emphasizing the value of volunteer participation. He also welcomed the renewal of the Army Environmental

BayScapes Planting Tips

- Plant evergreens and berry-producing shrubs. Their roots prevent erosion, and they provide color, cover and food for wildlife all year round.
- Choose perennials when possible. They reappear to bloom each year, in ever-greater numbers.
- Newly planted BayScapes require weeding, mulching and watering in dry periods. Once established, a native plant garden almost maintains itself.
- Create wildlife habitat by stacking tree limbs and twigs in a few areas of the garden. They serve as safe havens for many animals, including turtles.
- Mowing grass is a chore, and it can damage trees. Replace turf grass around trees with native shrubs or groundcover, such as highbush blueberry.
- Hummingbirds love nectar from the flowers of red trumpet creeper vine, and the twining stems of the vine provide shelter for other birds.
- An herb garden is a magnet for butterflies in all stages of life. Plant enough herbs to share with wild residents!
- Check with local nurseries before buying unfamiliar plants. Non-natives may require the use of pesticides or much water.
- Take care to avoid invasive species, which can overtake native plants and reduce food sources.
- Ask your plant nursery or your state's department of agriculture for a list of invasive plant species.

Center's partnership with nearby Edgewood Elementary School. Many of its students created stepping stones for the landscape and set the stones in place during the ceremony.

BayScapes Brochure Available

USAEC has developed a brochure to show how simple planting techniques anyone can use make a big difference in protecting the water quality of the Chesapeake Bay.

"Plant a Garden, Protect the Bay" is a pocket-sized brochure written for the public. It defines BayScapes as gardens of native plants that filter pollutants and conserve water, resist local pests and disease, and help improve the quality of water resources. The brochure describes the purpose of different types of BayScapes, including rain, native plant, and butterfly gardens. It also features BayScapes planting tips that both facility maintenance staff and home gardeners can use (see tips above). The brochure also includes Web sites and telephone numbers for obtaining more BayScapes information.

For a copy of the "Plant a Garden, Protect the Bay" brochure, contact Alison Cooley of HORNE ENGINEERING SERVICES at 800-994-6763.

FAC Highlights Important FACts

The Federal Agency Committee (FAC) met on Dec. 7 at the Chesapeake Bay Program Office in Annapolis, Md. The highlights of the meeting are below.

Langley Conservation Program

Patsy Kerr of Langley Air Force Base gave a slide presentation describing Langley's conservation program. The base completed its Integrated Natural Resource Management Plan at the end of 1998, and the environmental staff began using it as a road map for environmental restoration and protection projects almost immediately. Using a Challenge Grant from the Chesapeake Bay Program to get started, they embarked on a ten-phase shoreline erosion control project. The base had historically disposed of concrete rubble near its shore on the Back River. Using volunteers from the Chesapeake Youth Conservation Corps, they dug it up and placed it along the shoreline as a barrier so that native grasses could be planted behind it. The base now has a recycling program for concrete debris. It is

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Important FACTs

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stockpiled and used to lengthen the shoreline barrier on an on-going basis.

The Langley environmental staff has also been working with the base fire department to create submerged aquatic vegetation beds in order to attract sea horses native to the area. Using a National Oceanographic and Atmospheric Agency grant, they are in the process of building an oyster reef. Other projects they have undertaken include regular water quality monitoring, removing invasive phragmites, and using a Streamside Forest Grant to restore the understory in a palestrine wetlands area with the help of students from the base military school as volunteers. They organized annual Earth Day and National Public Lands Day plantings with volunteers from the base and the community. Finally, they have partnered with a local elementary school to encourage environmental awareness.

National Civilian Community Corps

Rodger Hurley of the National Civilian Community Corps (NCCC), a branch of Americorps, described how NCCC contributes to federal agency environmental projects. NCCC was created in 1993 and is based on the Civilian Conservation Corps of the 1930s. The Corps is made up of men and women 18 to 24 years old. They are organized into teams of 10 to 12. These teams work out of five regions located throughout the country. The Chesapeake watershed area is served by the Northeast Region based in Perry Point, Md., and the Capital Region based in Washington, D.C.

Any federal or state agency, or non-profit organization can submit an application to the NCCC to have a team work on a project in the areas of environmental restoration, education, human needs, such as shelters and soup kitchens, and public safety, such as disaster response. Teams have helped with shoreline stabilization and tree planting projects throughout the United States. Agencies wishing to use NCCC volunteers are asked to provide

food and basic training to perform project tasks, as well as some form of lodging if the project site is more than an hour away from the team's home base. NCCC prefers six to eight week projects so the team can get to know the community.

Chesapeake Bay Restoration Act

Bill Matuszeski, director of the U.S. Environmental Protection Agency Chesapeake Bay Program Office, and Peter Marx, associate director for communications at the office, discussed the Chesapeake Bay Restoration Act of 2000, which was signed into law on Nov. 7. The Act amends Section 117 of the Federal Water Pollution Control Act. It reauthorizes the program and gives its goals and procedures the force of law. It also enables federal agencies to establish budgets for compliance—an important element as, in the past, discretionary funds and grants were the primary funding vehicles. It further establishes the Chesapeake Bay Agreement as being anything formally signed by the Chesapeake Bay Program Executive Council.

The Act affects federal agencies in several ways.

- It establishes that federal agencies act “through the Administrator of the Environmental Protection Agency.”
- It formalizes the Chesapeake Bay Program Office's role as “coordinating the actions of the Environmental Protection Agency with the actions of the appropriate officials of other federal agencies and state and local authorities.”
- It continues the Small Watershed Grants Program, and it proscribes an affirmative duty of federal agencies owning and operating facilities within the Chesapeake Bay watershed to participate in regional and subwatershed planning and restoration programs.
- It states that, “the head of each federal agency that owns or occupies real property in the Chesapeake Bay watershed shall ensure that the property, and actions taken by the

agency with respect to the property, comply with the Chesapeake Bay Agreement, the Federal Agencies Chesapeake Ecosystem Unified Plan (FACEUP), and any subsequent agreements and plans.”

FAC members present at the Dec. 7 meeting had several concerns about the Act. One member wondered whether federal agencies, acting through the EPA administrator, might alter the traditionally collegial and cooperative method by which federal agencies develop the program's goals and requirements by making the process more centralized. Another member wondered if the requirement that federal agencies comply with every aspect of the Chesapeake Bay Agreement and FACEUP might constitute an unfunded mandate that would strain agencies' resources. Yet another member asked if the subwatershed planning and restoration requirement might require federal agencies to fund projects extending beyond its facility's own boundaries.

Matuszeski responded to the compliance issue by saying that the Act increases the leverage of federal facility environmental personnel in obtaining resources, as well as their authority in ensuring that the facility meets the program's objectives. He responded to the subwatershed planning and restoration concern by pointing out that expanded responsibilities represent opportunities for federal facility environmental staffs to launch more effective projects and garner more resources.

Aileen Smith, DoD Chesapeake Bay Program coordinator, developed guidance on the Act for DoD installations, which is currently under review.

Federal Agencies Chesapeake Ecosystem Unified Plan

Other FAC business included an end-of-year review of FACEUP in which tasks from the year 2000 were all reported to be completed or near completion and to be finished in 2001. Finally, Richard Cooksey of the U.S. Forest Service was selected by the committee to serve as the FAC alternate to the Budget Steering Committee. The next FAC meeting will be held on Thursday, Jan. 11 at Quantico Marine Base.

IC Highlights **Meeting** **Announcements**

Implementation Committee (IC) meetings were held on Nov. 2 and Dec. 14 at the Chesapeake Bay Program Office in Annapolis, Md. Highlights from these meetings include:

- Randy Pompino, executive director of the Canaan Valley Institute, gave the Gutman Seminar on how the institute is using innovative technology to provide sophisticated modeling of the Canaan Valley watershed in the Mid-Atlantic Highlands. The information is used to help stakeholder organizations located within the watershed with planning and growth decisions.
- Carin Bisland of U.S. EPA reported on the final changes to the draft Toxics 2000 strategy. She stated that a new goal of 10 percent reduction of chemical releases from point sources by the year 2005 was established, but that the stakeholders expressed reservations with this reduction plan. In response, the goal was revised as follows: "By 2010, reduce by at least 20 percent the 1998 Toxics Release Inventory chemical releases and offsite transfers for treatment and disposal from 1998 levels." The strategy also commits the Chesapeake Bay Program to evaluate the progress made toward this commitment in 2005. The Toxics Subcommittee wants a parallel standard for non-point source pollution and to eventually strive for zero release, but decided that this portion of the toxics strategy needs further development. The draft Toxics 2000 Strategy can be viewed on the Chesapeake Bay Program's Web site, <www.chesapeakebay.net>.
- Tom Simpson of the Maryland Department of Agriculture reported on the Principals' Staff Committee's (PSC) discussion of nutrient cap strategies. He said that the PSC committed to completing the strategy by March 2000. He added that the new nutrient reduction strategies will have to address offsets from new facilities.
- Mary Ellen Ley of EPA presented the results of each Bay Program committee's monitoring needs. These needs include current funding levels and projected funding needs for the next three years. Many of the figures were, of necessity, best guesses. The IC decided to treat this preliminary budget as a planning tool.
- Lewis Linker and Richard Batuik of EPA presented the current status of the Bay Program's efforts to improve the water quality model in response to the recent Scientific and Technical Advisory Committee (STAC) Model Review. They reported that the current model fails to account for vertical mixing properly, so turbulence had to be held constant at higher levels in order to better fit the model to the data. They said that the confidence level yielded by this adjustment has not been determined yet. They also said that the effort is six months behind schedule and needs further refinement before being submitted for further review.
- At the December meeting, Lewis Linker, the Modeling Subcommittee coordinator for the Chesapeake Bay Program, reported on Year 2000 progress from the Watershed Model. Ten years of hydrodynamic model output have been completed. The chief problem remaining in the model is accounting for the effect of wind forcing on mean sea level. This effect may have been doubly accounted for under previous computations, but the problem has been identified and the model is being recalibrated, nearly completing work on the main Bay. Hydrodynamic modeling of the tributaries will require more work.
- For the Water Quality Model three years of output have been completed. The most notable trend is that levels of phosphorous are reducing more rapidly than nitrogen in all basins.

This prompted a discussion among IC members on whether or not the model sufficiently accounts for nutrient loadings caused by nitrogen dissolved in soil and for the lag time caused by nitrogen entering the Chesapeake Bay through transmission by groundwater. Linker conceded that the model does not represent these processes very well. IC members also discussed whether nitrogen and sediment loadings in the tributaries, as represented by the model, are so high that attaining the caps established under the Chesapeake Bay Program are unattainable, and thereby make the caps unworkable as policy.

- Speaking for the Land Growth and Stewardship Subcommittee, Jack Frye presented its strategy for achieving two of the Chesapeake 2000 Agreement's public access goals: increase the number of designated water trails in the Chesapeake Bay Region by 500 miles, and increase the number of Bay access points by 30 percent. The subcommittee plans to establish a tracking system for new trails and new access points using June 2000 as the baseline. The subcommittee identified funding as the greatest inhibitor to creating new access points. It plans to work with state transportation departments to identify opportunities created by bridge construction and roads ending at the Bay and its tributaries. The subcommittee also plans to work with local governments and private property owners to reclaim orphaned waterfront sites and brownfields.
- Scott Phillips of the U.S. Geological Survey (USGS) briefed the IC on USGS programs and plans in support of Chesapeake Bay restoration efforts. USGS plans to coordinate its efforts with the Chesapeake Bay Program to avoid duplication of effort. In particular, USGS is interested in linking contamination entering the Bay to impacts on living resources. Using a model, USGS

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IC Highlights

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hopes to relate nutrient and sediment sources to loads in surface and groundwater and identify how much of those loads go in the Bay. The model will also show where the nutrients and sediments go in the Bay, at what speed, and how they impact the ecosystems receiving them. USGS also plans to increase its participation in technical subcommittees over the next five years.

■ Carlton Haywood, chair of the Monitoring Subcommittee, presented his proposal for reorganizing how the Chesapeake Bay Program's subcommittees and workgroups are structured so that monitoring activities can be more fully coordinated. Haywood proposes creating a monitoring oversight committee to act as a hub, coordinating multi-media monitoring activities with the need for confirmatory data for the models. He emphasized that under this plan, monitoring would continue to focus on achieving living resources improvements and not be sidetracked into serving the model. He plans to present his proposal to the individual subcommittees and workgroups in more detail with the hope of including it in the fiscal year 2002 budget.

■ Nancy Imler, chair of the Information Management Subcommittee, reported on its activities. The subcommittee's chief concern is that there is currently no coordination between the Chesapeake Bay Program's implementation grants and the data produced by the grant activities. To remedy this, the subcommittee will be sponsoring a workshop in January for grant recipients. Imler will explain how to format work products produced under the grant so that they take the form of a deliverable containing data that can be readily linked to the grant.

■ Diana Escher, chair of the Budget Steering Committee, presented the

committee's recommendations and proposed changes to the fiscal year 2001 budget. The budget has been reformatted to correspond to the Chesapeake 2000 commitments. The most notable changes were that money to implement Integrated Pest Management on high risk lands was cut in half, while Regional Action Plans for urban waters, the Bay Currents newsletter, the Community Partners Awards, citizen monitoring database management, and tax policy assessment were all slated for elimination. The IC agreed to save Regional Action Plans, the citizen database and the tax policy assessment if funds from the fiscal year 2000 are still available.

■ Rob Magnien of the Maryland Department of Natural Resources and Tom Fisher, a professor at the University of Maryland's Center for Environmental Studies, presented the first in a series of basin summaries. These summaries present monitoring results that support the Water Quality Steering Committee in setting new reduction goals. Fischer presented the Choptank River basin summary using data collected over 15 years from four monitoring stations beginning near Hillsboro, Md., and ending near the Route 50 bridge in Cambridge, Md. The Choptank data revealed declines in phosphorous, but rising nitrogen and sediment loads, decreased plankton size and stress, increased dyno flagellate blooms, steadily declining water quality and the absence of submerged aquatic vegetation in the river near Cambridge. Fisher said these conditions are probably caused by increased agricultural activity in the Hillsboro area. He added that the basin's problems should be addressed now through relatively inexpensive best management practices and tertiary wastewater treatment.

■ Carin Bisland of the Chesapeake Bay Program Office presented the results of the ad-hoc group to establish definitions and baselines for the "20 percent by 2010" land area preserva-

tion goal for the Bay watershed under the Chesapeake 2000 Agreement. She said more than one million acres need to be added to acreage that currently meets the definition of preserved land. A definite number needs to be established before the end of December so that signatory states can begin to appropriate the necessary money to acquire lands.

■ Bob Yowell of the Pennsylvania Department of Environmental Protection presented the Nutrient Trading Fundamental Principles and Guidelines document for IC approval. It was developed over 18 months and involved 16 public meetings. The document establishes key definitions, eight fundamental principals, and detailed guidelines for carrying out nutrient trades so that a net reduction in nutrient loading results from every trade. The IC approved it and sent it to the Principals' Staff Committee for final approval.

■ Bill Matuszeski reported on the outcome of the Dec. 5 meeting of the Water Quality Steering Committee. By studying the most recent water quality model runs, the committee determined that in order to meet the 1987 Agreement—40 percent reduction goals for nitrogen and phosphorous—twice the level of effort must be exerted in the next ten years than was exerted in the previous ten years. Also, in the spring of 2001, the committee will release for public review and comment its criteria for dissolved oxygen, water quality and chlorophyll-*a*. Finally, over the next year, the committee will establish new nitrogen, phosphorous, and sediment reduction goals for all of the major tributaries in the Chesapeake Bay watershed.